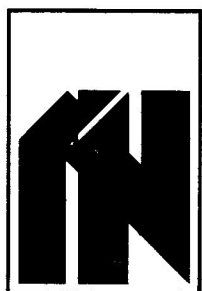


SERVICE MANUAL



TENSAI
INTERNATIONAL

**HI-FI STEREO TUNER
MODEL**

TT-3045

CONTENTS

SPECIFICATIONS	1
TRANSISTOR VIEW	1
DIAL CORD STRINGING	1
DESCRIPTION OF EXPLODED VIEW	1
EXPLODED VIEW	2
BLOCK DIAGRAM	3
SCHEMATIC DIAGRAM	4.5
FM ALIGNMENT PROCEDURE	6
AM ALIGNMENT PROCEDURE	6
P.C. BOARD AND PARTS LIST	7.8.9

SPECIFICATIONS

FM section

Tuning range	87.5–109MHz
Useable sensitivity	1.6μV
T.H.D.	Mono : 0.2%
	Stereo : 0.4%
S/N ratio	Mono : 60dB
	Stereo : 55dB
Image rejection	80dB
I.F. rejection	90dB
AM suppression	55dB
Intermodulation	80dB
Spurious response	80dB
Muting level	5μV
Frequency response	20–15000 Hz
Stereo separation	45dB
19KHz rejection	50dB
38KHz rejection	60dB

AM section

Tuning range	MW : 525–1650KHz
	LW : 130–365KHz
Useable sensitivity	MW : 20 μV
	LW : 30μV
T.H.D.	MW : 1%
	LW : 1.5%
S/N ratio	MW : 45dB
	LW : 40dB
I.F. rejection	MW : 40dB
	LW : 30dB
AGC figure of merit	MW : 60dB
	LW : 60dB
Frequency response	MW : 100–3500Hz

TRANSISTOR VIEW



2SC 1166



2SK 83

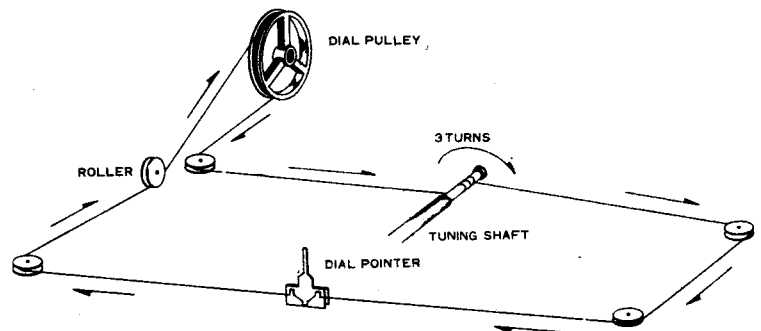


2SC 733
C 732
C 381
C 371



2SK 30

DIAL CORD STRINGING

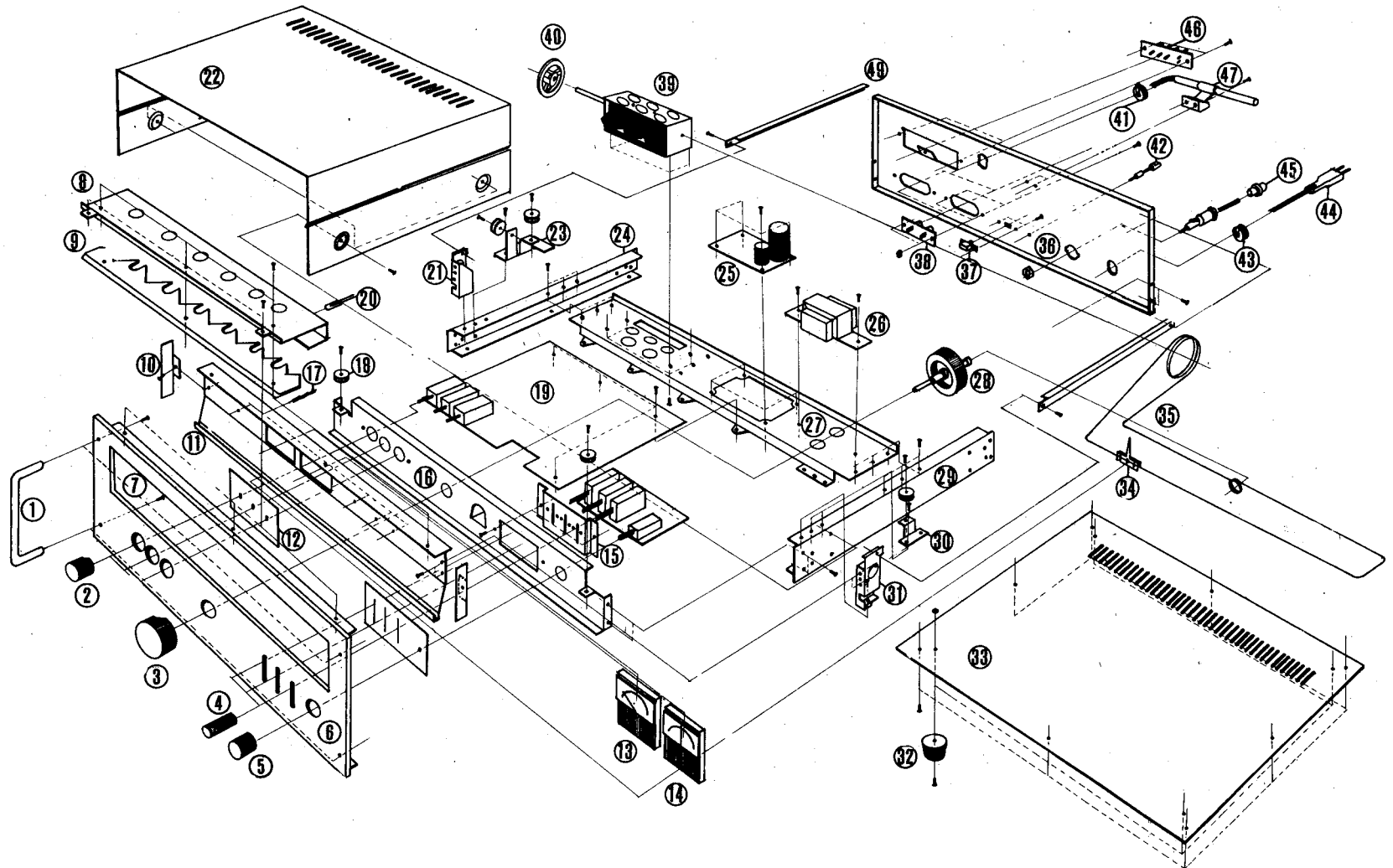


DESCRIPTION OF EXPLODED VIEW

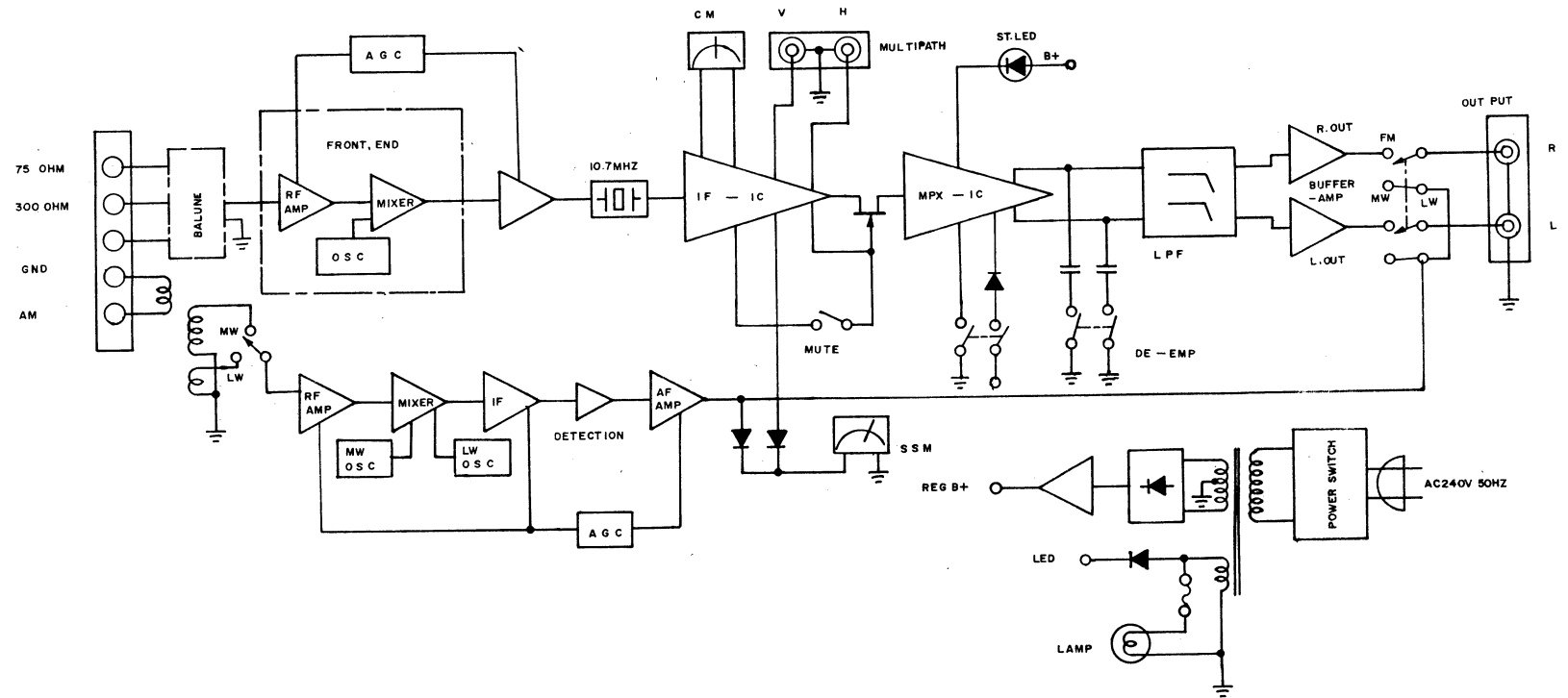
Ref. No.	Parts Name	Part No.
1)	Handle	38-001
2)	Knob for Push	22-009
3)	Knob for Tuning	22-527
4)	Knob for Lever	22-010
5)	Knob for Push (Power SW)	22-020
6)	Front Panel	20-022
7)	Dial lens	40-215
8)	Lamp House	30-014
9)	Acryl Reflector	40-216
10)	B.K.T. for Dial Scale	32-029
11)	Dial Scale	40-111
12)	Felt	80-422
13)	Signal Meter	51-818
14)	Tuning Meter	51-817
15)	B.K.T. for Lever SW.	32-094
16)	Front Chassis	10-020
17)	L.E.D.	51-708
18)	Dial Roller	60-010
19)	P.C.B.	
20)	Lamp	51-205
21)	B.K.T. for Dial Scale M.T.G. (L)	32-052
22)	Steel Cabinet	21-506
23)	B.K.T. for Roller	32-096
24)	B.K.T. for Side (L)	32-015

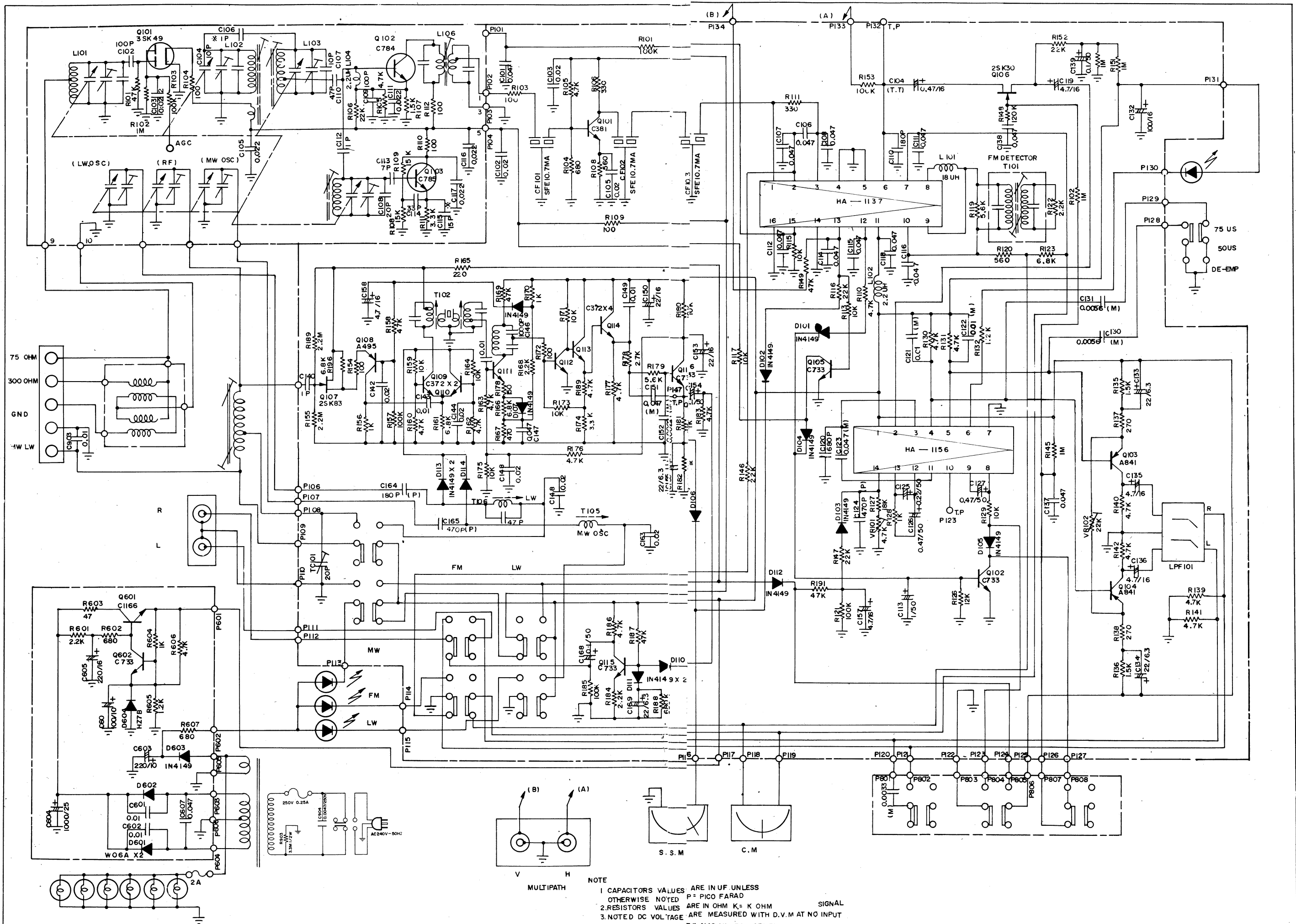
Ref. No.	Parts Name	Part No.
25)	P.C.B.	
26)	Power Transformer	72-021
27)	Master Chassis	11-010
28)	Tuning Mechanism Ass'y	60-905
29)	B.K.T. for Side (R)	32-015
30)	B.K.T. for Dial Roller	32-093
31)	B.K.T. for Dial Scale M.T.G.	32-501
32)	Rubber Foot	40-501
33)	Bottom	13-023
34)	Dial Pointer	60-202
35)	Dial Cord	
36)	Rear Chassis	12-024
37)	DE-EMP	32-106
38)	RCA Connector	51-204
39)	Front End	
40)	Dial Pulley:	60-007
41)	Cord Stopper	40-503
42)	System Ground	52-903
43)	Cord Stopper	40-503
44)	AC Cord	
45)	Fuse and Fuse Holder	50-412
46)	Antenna Terminal	51-102
47)	AM Antenna Ass'y	72-416

EXPLODED VIEW



BLOCK DIAGRAM





FM ALIGNMENT PROCEDURE

Step	Align	Generator	Dial Setting	Adjust	Adjust for
1.	IF			Front End IF	Maximum noise output
2.	Discriminator	1) Sweep generator 2) 98MHz 400Hz 40KHz deviation	98MHz	FM detector T101 top & bottom core T101 Top core T101 Front End IF	Maximum S curve Center meter Center position Minimum distortion
3.	OSC	88MHz 400Hz 40KHz deviation	88MHz	Front End Lo	Maximum
4.	OSC	108MHz 400Hz 40KHz deviation	108MHz	Front End Tco	Maximum
5.	Reiterate 3 & 4				
6.	High-frequency Amp. Circuit	90MHz 400Hz 40KHz deviation	90MHz	Front End LRI, LR2, LA	Maximum
7.	High-frequency Amp. circuit	106MHz 400Hz 40KHz deviation	106MHz	Front End TCR1, TCR2, TCA	Maximum
8.	Reiterate 6 & 7				
9.	FM stereo lamp			VR101	19KHz setting with frequency counter connected to 123
10.	Stereo separation	98MHz 400Hz 40KHz deviation	98MHz	VR102	Maximum output difference between P126, 127 output from L output and that from R output of SSG

Note: To align, connect the output of FM SSG to antenna terminal of 75 ohms for feeding signal and connect the FM output P126 or P127 to VTVM and oscilloscope for output indication.

AM ALIGNMENT PROCEDURE

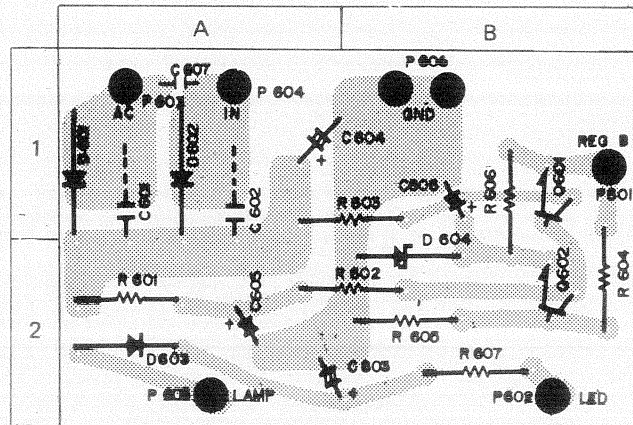
Step	Align	SSG		Dial Setting		Adjust		Adjust for
1.	IF	AM SSG 455KHz \pm 30KHz				IFT1 T102 IFT2 T103		Best IF Curve Maximum
2.	OSC Low	MW 550KHz 400Hz 30% modulation	LW 140KHz 400Hz 30% modulation	MW 550KHz	LW 140KHz	MW T105	LW T107	Maximum Tuning
3.	OSC High	1600KHz 400Hz 30% modulation	350KHz 400Hz 30% modulation	1600KHz	350KHz	F.E. MW Trimmer	F.E. LW Trimmer	Maximum Tuning
4.	Reiterate 2 & 3							
5.	Antenna Circuit	600KHz 400Hz 30% modulation	1400KHz 400Hz 30% modulation	600KHz	140KHz	MW Bar Ant.	LW Bar Ant.	Maximum Tuning
6.	Antenna Circuit	1400KHz 400Hz 30% modulation	350KHz 400Hz 30% modulation	1400KHz	350KHz	F.E. Ant. Trimmer	Trimmer TC 10	Maximum Tuning
7.	Reiterate 5 & 6							

P.C. BORD AND PARTS LIST

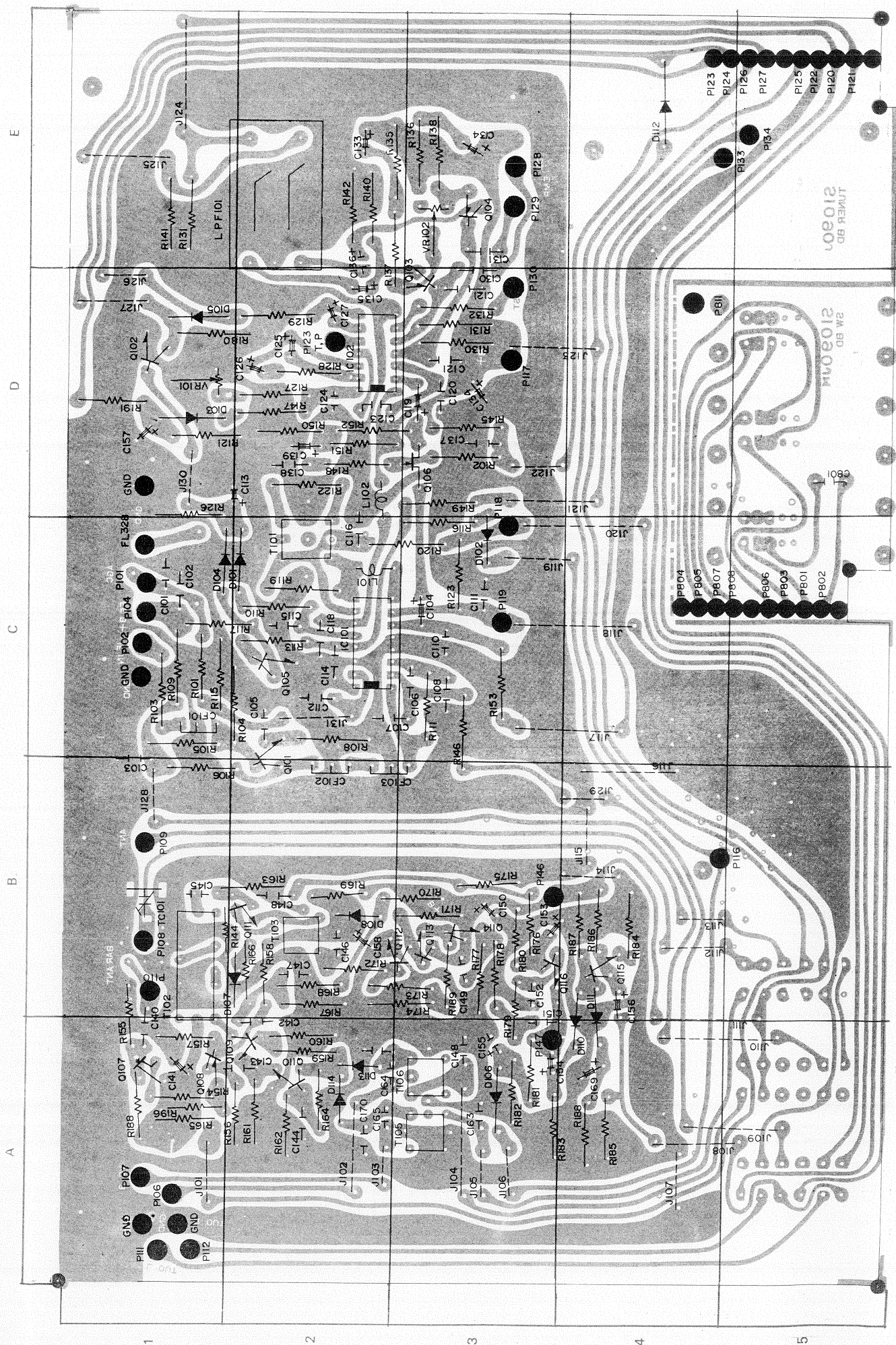
SUPPLY B.D. S1012

TUNER B.D. S1090 J

S1012 SUPPLY B.D.



Symbol	Description	Location
R601	$680\Omega \pm 5\% \frac{1}{4}W$	2A
R602	$2.2K\Omega$ "	2AB
R603	47Ω "	1AB
R604	$1K\Omega$ "	12B
R605	$1.2K\Omega$ "	2B
R606	$4.7K\Omega$ "	12B
R607	680Ω "	2B
C601	$0.01\mu F$	1A
C602	$0.01\mu F$	1A
C603	$220\mu F/10WV$	1AB
C604	$1000\mu F/25WV$	1AB
C605	$220\mu F/16WV$	2A
C606	$100\mu F/10WV$	1B
C607	$0.047\mu F$	1A
Q601	2SC1166	1A
Q602	2SC733	2B
D601	W06A	1A
D602	W06A	1A
D603	MA 161	2A
D604	Zener HZ7B	2B



Symbol	Description	Location	Symbol	Description	Location	Symbol	Description	Location
R101	100K $\frac{1}{4}W \pm 5\%$	1C	R177	4.7K "	3B	C155	23 μF /6.3V	3A
R102	1M "	3D	R178	2.7K "	3B	C156	0.1 μF /50V	4B
R103	100 "	1C	R179	5.6K "	3A.B	C157	4.7 μF /16V	1D
R104	680 "	2C	R180	10K "	3B	C158	4.7 μF /16V	2B
R105	4.7K "	1C	R181	1K "	3A	C163	0.02 μF /50V	3A
R106	330 $\frac{1}{4}W \pm 5\%$	1B	R182	1K "	3A	C164	180P / $\pm 5\%$ Poly	3A
R108	560 "	2C	R183	4.7K "	3.4A	C165	470P / $\pm 5\%$ Poly	2A
R109	100 $\frac{1}{4}W \pm 5\%$	1C	R184	2.2K "	4B	C169	22 μF /6.3V	4A
R110	4.7K "	2C	R185	100K "	4A	C170	47P /50V $\pm 10\%$	2A
R111	330 "	3C	R186	4.7K "	4B	C171	0.02 μF /50V	3A
R113	10K "	2C	R187	47K "	4B	C801	0.0033 μF /50V $\pm 5\%$ (M)	5D
R115	10K "	1C	R188	680K "	4A			
R116	22K "	3C	R189	4.7K "	3B	D101	IN4149	2C
R117	22K "	1.2.C	R190	2.2M $\frac{1}{4}W \pm 5\%$	1A	D102	IN4149	3C
R119	5.6K "	2C	R191	47K $\frac{1}{4}W \pm 5\%$	1D	D103	IN4149	1D
R120	6.8K "	2.3C	R196	6.8K $\frac{1}{4}W \pm 5\%$	1A	D104	IN4149	1C
R121	100K "	1D				D105	IN4149	1D
R122	2.2K "	2D	C101	0.047 μF /50V	1C	D106	IN4149	3A
R123	330 "	3C	C102	0.02 μF /50V	1C	D107	IN3449	2B
R126	12K "	1D	C103	0.02 μF /50V	1C	D108	IN4149	2B
R127	18K "	2D	C104	0.47 μF /16V T.T.	3C			
R128	1K "	2D	C105	0.02 "	2C	D110	IN4149	4AB
R129	10K "	2D	C106	0.047 μF /50V	3C	D111	IN4149	4AB
R130	4.7K "	3D	C107	0.047 μF /50V	2.3.C	D112	IN4149	4E
R131	4.7K "	3D	C108	0.047 μF /50V	3C	D113	IN4149	2A
R132	1.2K "	3D	C110	180P /50V $\pm 10\%$	3C	D114	IN4149	2A
R135	1.5K "	2E	C111	0.047 μF "	3C	Q101	2SC 381	2B.C
R136	1.5K "	3E	C112	0.047 μF "	2C	Q102	2SC 733	1D
R137	270 $\frac{1}{4}W \pm 5\%$	2E	C113	1 μF /50V "	2D	Q103	2SA 841	3D
R138	270 "	3E	C114	0.047 μF "	2C	Q104	2SA 841	3E
R139	4.7K "	1E	C115	0.047 μF "	2C	Q105	2SC 733	2C
R140	4.7K $\frac{1}{4}W \pm 5\%$	2E	C116	0.047 μF "	2C	Q106	2SK 30	3D
R141	4.7K "	1E	C118	0.047 μF "	2C	Q107	2SK 83	1A
R142	4.7K $\frac{1}{4}W \pm 5\%$	2E	C119	4.7 μF /16V	3D	Q108	2SA 495	1A
R144	150 $\frac{1}{4}W \pm 5\%$	2B	C120	680P /50V $\pm 10\%$	3D	Q109	2SC 372	2A
R145	1M "	3D	C121	0.01 μF /50V $\pm 5\%$ Mylar	3D	Q110	2SC 372	2A
R146	22K "	3C	C122	0.01 μF /50V $\pm 5\%$ Mylar	3D	Q111	2SC 372	2B
R147	22K "	2D	C123	0.047 μF /50V $\pm 5\%$ (M)	2D	Q112	2SC 372	3B
R148	120K "	2D	C124	470P /50V $\pm 5\%$ Poly	2D	Q113	2SC 372	3B
R149	47K "	3D	C125	0.22 μF /50V	2D	Q114	2SC 372	3B
R150	1M "	2D	C126	0.47 μF /50V	2D	Q115	2SC 733	4B
R151	1M "	2D	C127	0.47 μF /50V	2D	Q116	2SC 733	3.4B
R152	22K "	2D	C130	0.005 μF /50V $\pm 5\%$ Mylar				
R153	100K "	3C	C131	0.0056 μF /50V $\pm 5\%$ Mylar	3E	TC101	Trimmer 20P	1B
R154	100 Ω $\frac{1}{4}W \pm 5\%$	1A	C132	100 μF /16V				
R155	2.2M $\frac{1}{4}W \pm 5\%$	1A.B	C133	22 μF /6.3V	2E	T101	FM DETECTOR	2C
R156	1K "	2A	C134	22 μF /6.3V	3E	T102	AM IFT-1	1B
R157	100K $\frac{1}{4}W \pm 5\%$	1A	C135	4.7 μF /16V	2D	T103	AM IFT-2	2B
R158	47K "	2B	C136	4.7 μF /16V	2DE			
R159	10K "	2A	C137	0.047 μF /50V	2D	T105	LW OSC	3A
R160	4.7K "	2A	C138	0.047 μF /50V	2D	T106	MW OSC	3A
R161	6.8K "	2A	C139	0.1 μF /50V	2D			
R162	4.7K "	2A	C140	1P $\pm 10\%$ /50V	1AB	LPF101	MPX 170 BCR 3107N	1E
R163	4.7K $\frac{1}{4}W \pm 5\%$	2B	C141	0.047 μF /50V				
R164	10K "	2A	C142	0.02 μF /50V	2AB	CF101	SFE 10.7MA or CFS 10.7	1C
R165	220 $\frac{1}{4}W \pm 5\%$	1A	C143	0.01 μF /50V	2A	CF102	"	2B.C
R166	6.8K "	2B	C144	0.02 μF /50V	1A	CF103	"	2.3.B.C.
R167	470 "	2B	C145	0.01 μF /50V				
R168	2.2K "	2B	C146	1000P /50V $\pm 10\%$	2B	IC101	HA-1137	2C
R169	47K "	2B	C147	0.047 μF /50V $\pm 10\%$	2B	IC102	HA-1156	2D
R170	1K "	3B	C148	0.02 μF /50V $\pm 10\%$	3B			
R171	10K "	3B	C149	0.01 μF /50V $\pm 10\%$	3B	L101	18 μH	2C
R172	100 "	2B	C150	22 μF /16V	3B	L102	2.2 μH	2D
R173	10K "	2.3B	C151	0.047 $\pm 5\%$ /50V Mylar				
R174	3.3K $\frac{1}{4}W \pm 5\%$	2.3B	C152	0.0022 /50V $\pm 5\%$ Mylar	3B	VR101	4.7K Semifixed	1D
R175	10K "	3B	C153	22 μF /16V	4.3.B	VR102	22K Semifixed	3E
R176	4.7K "	3B	C154	0.1 μF /50V				